

Title (en)

Process for producing a dense, self-sintered silicon carbide/carbon-graphite composite

Title (de)

Verfahren zum Herstellen eines dichten, selbstgesinteren Siliciumcarbid/Kohlenstoff-Graphitkomposit

Title (fr)

Procédé de fabrication d'un composite dense et auto-fritté de carbure de silicium/carbone-graphite

Publication

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Application

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Priority

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Abstract (en)

[origin: WO9418141A1] A dense, self-sintered silicon carbide/carbon-graphite composite material and a process for producing the composite material is disclosed. The composite material comprises a silicon carbide matrix, between 2 and 30 percent by weight carbon-graphite, and small amounts of sintering aids such as boron and free carbon. The silicon carbide has an average grain size between 2 and 15 μ m, and the carbon-graphite has an average grain size between 10 and 75 μ m, the average grain size of the carbon-graphite being greater than the average grain size of the silicon carbide. The composite material has a density of at least 80 percent of theoretical density as determined by the rule of mixtures for a composite material. This density is achieved with minimal microcracking at a high graphite loading with large graphite particles. The composite material exhibits good lubricity and wear characteristics, resulting in improved tribological performance. The process for producing the composite material uses a carbon-bonded graphite comprising at least 5 percent by weight carbon-precursor binder.

IPC 8 full level

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